

## REMARKS

Reconsideration of the present application is requested in view of the above amendments and the remarks below.

With the above amendment, claims 1, 3, 4, 7, 8, 11, and 14 have been amended to further define the invention of the present application; claims 2 and 10 have been deleted; and new claims 16 to 26 have been added. New claims 16 to 26 are similar in scope to the present claims of the application as they depend to or up through to claim 3; the claims prior to 16, excluding claim 3, are dependent to or up through to claim 1. A sheet showing the deletions and additions to the claims is attached hereto.

In the Office Action dated October 3, 2002, the Patent Office rejected claims 1 to 15 under 35 U.S.C. § 102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly being obvious over Ota *et al.* (United States Patent No. 5,942,369). Also in the Office Action, the Patent Office rejected claims 1 to 3 under 35 U.S.C. § 102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly being obvious over Koes *et al.* (United States Patent No. 5,981,135), or Padmanaban *et al.* (United States Patent No. 5,738,972). For the reasons set forth below, these rejections are traversed.

The Patent Office stated that Ota *et al.* discloses photoresist compositions comprising a mixture of two resins, the first being a novolak resin and the second being an acrylic resin defined in Ota *et al.* in the abstract thereof as well as at column 3, line 9 to column 4, line 44, and in Examples 1 to 12. Applicant disagrees.

The acrylic resins disclosed by Ota *et al.* contain a unit of "a radical-polymerizable compound having an alcoholic hydroxyl group and at least one structural unit selected from the group consisting of a unit of a radical-polymerizable compound having a

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carboxyl group and a unit of a radical-polymerizable compound having a phenolic hydroxyl group." See column 3, lines 10 to 15. With applicant's amendments to the claims, such units are no longer present with the claims. Additionally, there is no longer reference to refractive index in the claims. As such, applicant's invention is no longer anticipated by or obvious over Ota *et al.* Withdrawal of the rejections is requested.

The Patent Office stated that Koes *et al.* discloses, in Example 1, a resin mixture comprising a hydroxypropyl methylcellulose acetate succinate resin and an acrylic resin made from acrylic acid, 2-ethylhexyl acrylate and styrene. The Patent Office stated that the resin mixtures are sufficiently different such that the Patent Office asserts that by inherency it would possess a difference in the refractive index of greater than 0.03. Applicant disagrees.

Applicant submits that the present invention does not include a mixture of hydroxypropyl methylcellulose acetate succinate resin and an acrylic resin made from acrylic acid, 2-ethylhexyl acrylate and styrene, noting that from the Abstract of Koes *et al.*, an acid functional cellulosic resin may be the only binder resin with an acidic acrylate resin being optional. Applicant further submits that the Patent Office has not made a case of inherency as it has provided no basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the document. It would be equally acceptable for one to assert that the resin mixtures are sufficiently different such that by inherency it would possess a difference in the refractive index of less than 0.03. Additionally, the Patent Office has not shown any structural similarities between the resins of Koes *et al.* and applicant's resins. As such, the inherency position of the Patent Office is not tenable. In addition, with applicant's amendment to the claims, there is no longer reference to refractive index in the claims. As such, applicant's invention is no longer anticipated by or obvious over Koes *et al.* Withdrawal of the rejections is requested.

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The Patent Office states that Padmanaban *et al.* discloses a resin mixture comprising two different resins and again asserts that by inherency that the difference in refractive index of the two resins would fall within the claimed range of greater than 0.03. Applicant disagrees.

Applicant submits that the present invention does not include a mixture of polyhydroxystyrene copolymer and polyacetal resin of Padmanaban *et al.*. Applicant further submits that the Patent Office has not made a case of inherency as it has provided no basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the document. It would be equally acceptable for one to assert that the resin mixtures are sufficiently different such that by inherency it would possess a difference in the refractive index of less than 0.03. Additionally, the Patent Office has not shown any structural similarities between the resins of Padmanaban *et al.* and applicant's resins. As such, the inherency position of the Patent Office is not tenable. In addition, with applicant's amendment to the claims, there is no longer reference to refractive index in the claims. As such, applicant's invention is no longer anticipated by or obvious over Padmanaban *et al.*. Withdrawal of the rejections is requested.

Applicant submits that the concerns of the Patent Office have been addressed. Withdrawal of the rejections and issuance of a Notice of Allowance is respectfully solicited.

Concurrently filed herewith are the following documents:

Petition and Fee for One (1) Month Extension of Time  
Power of Attorney to Associate Attorney  
Patent Application Fee Determination Record

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Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Alan P. Kass", written in black ink.

Attorney of Applicant(s)  
Alan P. Kass  
(Reg. No. 32,142)  
4000 Monroe Road  
Charlotte, North Carolina 28205  
Telephone: (908) 595-3890  
Telefax: (908) 429-3650

Customer No. 25,255

**Attachment A – Sheets showing marked up versions of claims amended**

1. (Amended) A radiation sensitive composition comprising a resin composition and a radiation sensitive material, wherein the resin composition comprises two or more kinds of resins of (a) an alkali-soluble novolak resin and (b) a resin additive comprising at least one member selected from the group of polyacrylic ester, polymethacrylic ester, polystyrene derivatives, polyvinyl benzoate, polyvinyl phenyl acetate, polyvinyl acetate, polyvinyl chloroacetate, polyacrylonitrile, poly- $\alpha$ -methylacrylonitrile, polyvinyl phthalimide, and copolymers obtained from two or more monomers selected from acrylic ester, methacrylic ester, styrene derivatives, vinyl benzoate, vinyl phenyl acetate, vinyl acetate, vinyl chloroacetate, acrylonitrile,  $\alpha$ -methylacrylonitrile, N-vinyl phthalimide, N-vinyl imidazole, N-vinyl carbazole, 2-vinyl quinoline, vinyl cyclohexane, vinyl naphthalene, vinyl pyridine and N-vinyl pyrrolidone, wherein polyacrylic ester of a resin additive is one member selected from the group of polymethyl acrylate, polyethyl acrylate, poly-n-propyl acrylate, poly-n-butyl acrylate, poly-n-hexyl acrylate, polyisopropyl acrylate, polyisobutyl acrylate, poly-t-butyl acrylate, polycyclohexyl acrylate, polybenzyl acrylate, poly-2-chloroethyl acrylate, polymethyl- $\alpha$ -chloroacrylate, polyphenyl  $\alpha$ -bromoacrylate or a copolymer therefrom, and polymethacrylic ester of a resin additive is one member selected from the group of polymethyl methacrylate, polyethyl methacrylate, poly-n-propyl methacrylate, poly-n-butyl methacrylate, poly-n-hexyl methacrylate, polyisopropyl methacrylate, polyisobutyl methacrylate, poly-t-butyl methacrylate, polycyclohexyl methacrylate, polybenzyl methacrylate, polyphenyl methacrylate, poly-1-phenylethyl methacrylate, poly-2-phenylethyl methacrylate, polyfurfuryl methacrylate, polydiphenylmethyl methacrylate, polypentachlorophenyl methacrylate, polynaphthyl methacrylate or a copolymer therefrom [, further wherein the resins have a difference in refractive index of at least 0.03].

3. (Amended) A radiation sensitive composition comprising a resin composition and a radiation sensitive material, wherein the resin composition comprises at least (a) an alkali-soluble novolak resin and (b) a resin additive comprising at least one member selected from the group of polyacrylic ester, polymethacrylic ester, polystyrene derivatives, polyvinyl benzoate, polyvinyl phenyl acetate, polyvinyl acetate, polyvinyl chloroacetate, polyacrylonitrile, poly- $\alpha$ -methylacrylonitrile, polyvinyl phthalimide, and copolymers obtained from two or more monomers selected from acrylic ester, methacrylic ester, styrene derivatives, vinyl benzoate, vinyl phenyl acetate, vinyl acetate, vinyl chloroacetate, acrylonitrile,  $\alpha$ -methylacrylonitrile, N-vinyl phthalimide, N-vinyl imidazole, N-vinyl carbazole, 2-vinyl quinoline, vinyl cyclohexane, vinyl naphthalene, vinyl pyridine and N-vinyl pyrrolidone, wherein polyacrylic ester of a resin additive is one member selected from the group of polymethyl acrylate, polyethyl acrylate, poly-n-propyl acrylate, poly-n-butyl acrylate, poly-n-hexyl acrylate, polyisopropyl acrylate, polyisobutyl acrylate, poly-t-butyl acrylate, polycyclohexyl acrylate, polybenzyl acrylate, poly-2-chloroethyl acrylate, polymethyl- $\alpha$ -chloroacrylate, polyphenyl  $\alpha$ -bromoacrylate or a copolymer therefrom and polymethacrylic ester of a resin additive is one member selected from the group of polymethyl methacrylate, polyethyl methacrylate, poly-n-propyl methacrylate, poly-n-butyl methacrylate, poly-n-hexyl methacrylate, polyisopropyl methacrylate, polyisobutyl methacrylate, poly-t-butyl methacrylate, polycyclohexyl methacrylate, polybenzyl methacrylate, polyphenyl methacrylate, poly-1-phenylethyl methacrylate, poly-2-phenylethyl methacrylate, polyfurfuryl methacrylate, polydiphenylmethyl methacrylate, polypentachlorophenyl methacrylate, polynaphthyl methacrylate or a copolymer therefrom and the radiation sensitive material is (c) a radiation sensitive material containing a quinonediazide group.

4. (Amended) The radiation sensitive composition according to claim [2]1, wherein the resin additive is [at least one selected from polyacrylic ester, polymethacrylic ester, polystyrene derivatives,] a copolymer obtained from at least two monomers selected from acrylic esters, methacrylic esters and styrene derivatives, and a copolymer obtained from at least one of these monomers and an organic acid monomer having a carboxyl group or a carboxylic anhydride group.

7. (Amended) The radiation sensitive composition according to claim [2]1, wherein the dissolution rate in 2.38 weight-% aqueous tetramethylammonium hydroxide of the radiation sensitive composition is not more than 5000 Å/min.

8. (Amended) The radiation sensitive composition according to claim [2]1, wherein when the resin containing styrenic monomer-repeating units of less than 50 mole-% of repeating units in the resin is used as the resin additive, the weight average molecular weight of the resin is 7,000 to 20,000 as determined by polystyrene standards and when the resin containing styrene derivative-repeating units of not less than 50 mole-% of repeating units in the resin is used as the resin additive, the weight average molecular weight of the resin is 3,000 to 25,000 as determined by polystyrene standards.

11. (Amended) The radiation sensitive composition according to claim [10]1, wherein the weight average molecular weight of the novolak resin is 3,000 to 15,000 as determined by polystyrene standards.

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14. (Amended) The radiation sensitive composition according to claim [2]1, wherein when a resin containing styrenic monomer-repeating units of less than 50 mole-% of repeating units in the resin is used as the resin additive, the content of the resin additive is 1 to 20 parts by weight relative to 100 parts by weight of novolak resin of the alkali-soluble resin and when a resin containing styrenic monomer-repeating units of not less than 50 mole-% of repeating units in the resin is used as the resin additive, the content of the resin additive is 0.5 to 5 parts by weight relative to 100 parts by weight of novolak resin of the alkali-soluble resin.